AMENDMENTS TO THE SPECIFICATION

Please replace paragraphs 1, 11, 32, 44, 49 & 65 of the originally filed specification with the following substitute paragraphs.

[0001]   The present invention relates to a visualization technique for co-rendering multiple attributes in real time, thus forming a combined image of the attributes. The combined image is visually intuitive in that it distinguishes certain features of an object that are substantially indistinguishable in their natural environment.

[0011]   Although Kilgard's new technique may be suitable for simulating surface irregularities (texture) representative of true geometric perturbations, it does not address the use of similar lighting effects to distinguish certain features of an object that are substantially indistinguishable in their natural environment~~and not representative of the true geometric perturbations~~.

[0032]   The present invention may not be implemented using hardware, software or a combination thereof, and may be implemented in a computer system or other processing system. The following description applies the present invention to various seismic data attributes which are contained within a specified space or volume referred to as a probe. Each probe comprises voxel data represented by x, y, z, data value. Each data value is associated with a particular seismic data attribute at a specified location (x, y, z). The present invention, therefore, may employ one or more of the hardware and software system components required to display and manipulate the probe as described in U.S. patent No. ~~09/119,634~~6,765,570 ("'570 Patent") assigned to ~~Magic Earth, Inc.~~Landmark Graphics Corporation and incorporated herein by reference. For a more complete

description of the probe requirements, reference is made to the ~~'634 application~~'570 Patent.

[0044]   Alternatively, Open Scene Graph® can be used as the visual simulation graphics library **108**. Open Scene Graph® operates in the same manner as OpenGL Performer®, providing programming tools written in C/C++ for a large variety of computer platforms. Open Scene Graph® is based on OpenGL® and is <u>publicly</u> available ~~through www.openscenegraph.com~~.

[0049]   In Step **202**, a first attribute and a second attribute are selected from the available attributes using the GUI tools (menu/interface software **104**) described in reference to Figure **1**. Although other available stored attributes may be used, such as frequency and phase, semblance is used as the first attribute illustrated in the probe **300** of Figure **3**, and amplitude is used as the second attribute illustrated in the probe **400** of Figure **4**. The seismic data is displayed on the visible planar surfaces of the probe using conventional shading/opacity (texture mapping) techniques, however, may be displayed within the planar surfaces defining the probe using volume rendering techniques generally well known in the art. In order to display seismic data in the manner thus described, voxel data is read from memory and converted into a specified color representing a specific texture. Textures are tiled into 256 pixel by 256 pixel images. For large volumes, many tiles exist on a single planar surface of the probe. This process is commonly referred to by those skilled in the art as sampling, and is coordinated among multiple CPU's on a per-tile basis. These techniques, and others employed herein, are further described and illustrated in the ~~'634 application~~'570 Patent.

[0065]   In Step **220**, the probe is interactively controlled so that it can be resized or moved in a manner more particularly described in the ~~'634 application~~'570 Patent. This step necessarily alters the voxels displayed on the planar surfaces of the probe for the combined image displayed in Step **210**. As a result, the first and second attributes must be re-sampled in Step **222** and Steps **204, 206**, and **208** must be reapplied to display a new image in Step **210** illustrating the same attributes at a different location.